This resource assessment is designed to gather and display information specific to San Juan County, Utah. This report will highlight the natural and social resources present in the county, detail specific concerns, and be used to aid in resource planning and target conservation assistance needs. This document is dynamic and will be updated as additional information is available through a multi-agency partnership effort. The general observations and summaries are listed first, followed by the specific resource inventories.

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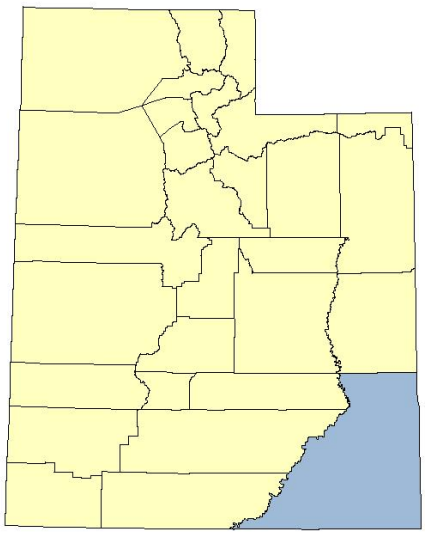
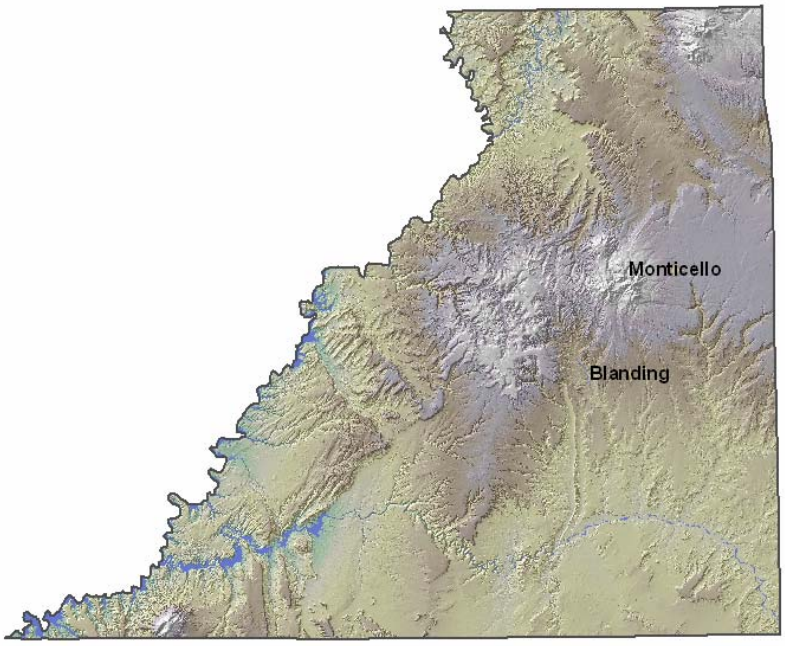




Introduction

San Juan County is located in the far south-eastern portion of Utah within the Colorado Plateau along the Colorado and Arizona borders. It is the largest county in Utah and the second largest in the United States with approximately 7,884 mi^2 or 5.2 million acres. Some of the more famous attractions within San Juan County are Canyonlands National Park, Lake Powell, Four Corners area and the Navajo Indian Reservation. The majority of the land (approx. 72%) is administered by federal and tribal agencies. Land ownership/administration within San Juan County is broken down as follows (acres, % of total): BLM 2,074,247, 41%; Indian Reservation 1,220,846, 23%; National Parks Service 587,375, 10%; U.S.F.S 450,549, 9%; State of Utah 406,415, 8%; Private 406,367, 8%, and Private Indian Trust Funds 25,117, 1%.

Summer precipitation patterns are typical for the south west with monsoonal storms, with heavier snow accumulations within the higher elevations during the winter months. The average growing season is June 1 through October 1, with slightly longer periods in the lower elevations. The average annual precipitation within the County is between 6 and 22 in yr^{-1}.

General Land Use Observations

Grass / Pasture / Hay Lands

- Complications related to overgrazing include poor pasture condition, soil compaction and water quality issues.
- Control of noxious and invasive plants is an ever increasing problem.
- The small, part-time farms are less likely to adopt conservation due to cost and low farm income.

Row & Perennial (orchards / vineyards / nurseries) Crops

- Residue, nutrient and pest management are needed to control erosion and to protect water quality.
- The small, part-time farms are less likely to adopt conservation due to cost and low farm income.

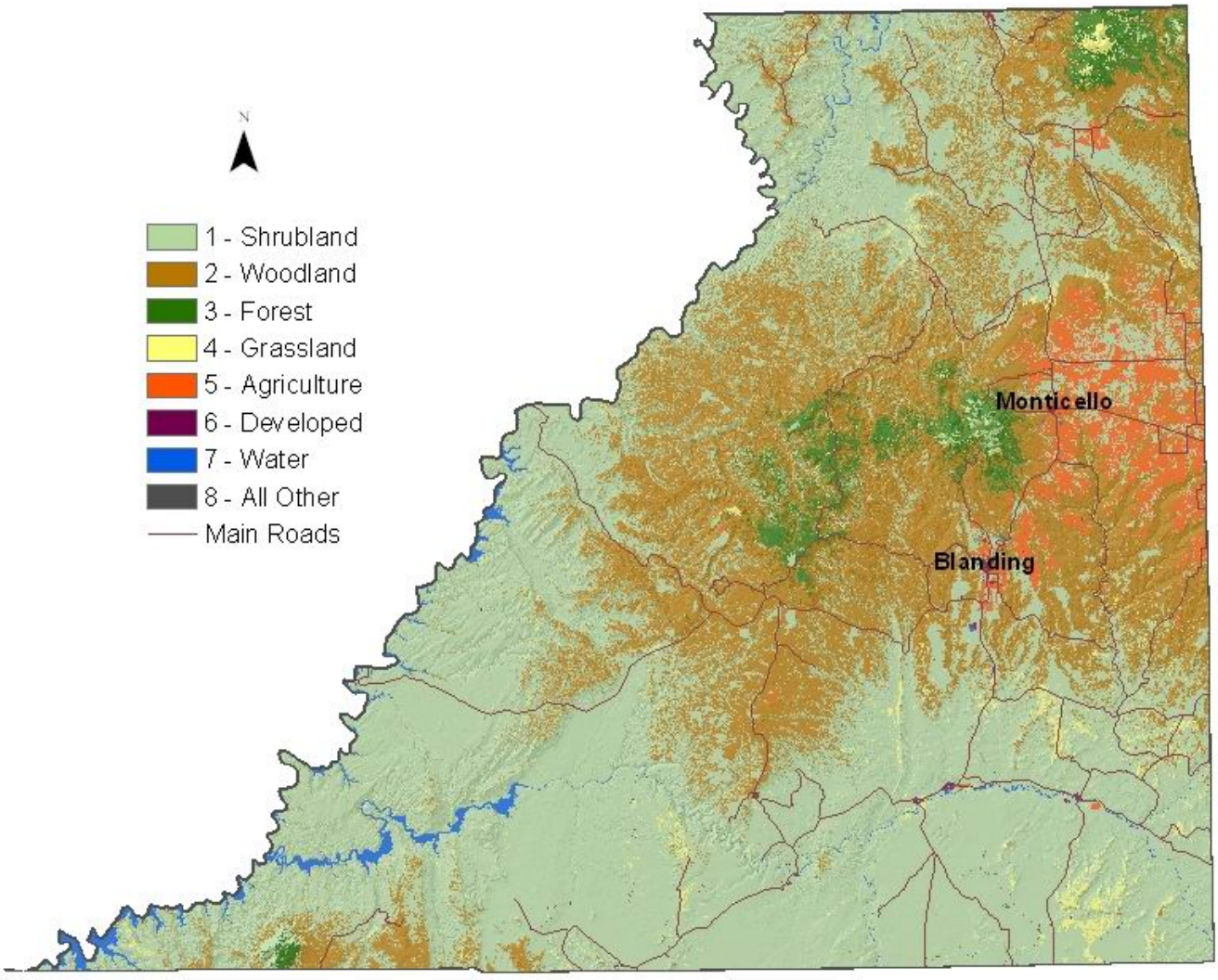
Forest

- On private, non-industrial forest there are issues with erosion, water quality and forest productivity
- On non-industrial forest land, landowner objectives often are not on actively managing the land for timber production. Land use constraints and the lack of economic incentives further discourage conservation.

Resource Assessment Summary

Categories	Concern high, medium, or low	Description and Specific Location (quantify where possible)
Soil	Medium	Soil erosion associated with dryland farming.
Water Quantity	Medium	Water depletion in Lake Powell and additonal lower basin storage.
Water Quality Ground Water	Medium	General concerns regarding ground water quality.
Water Quality Surface Water	Medium	General concerns regarding ground water quality.
Air Quality	Low	No concerns mentioned.
Plant Suitability	Medium	General concerns regarding noxious/invasive weeds.
Plant Condition	Low	No concerns mentioned.
Fish and Wildlife	Medium	Do not want the reintroduction of wolves in the area.
Domestic Animals	Low	No concerns mentioned.
Social and Economic	Low	No concerns mentioned.

Land Cover



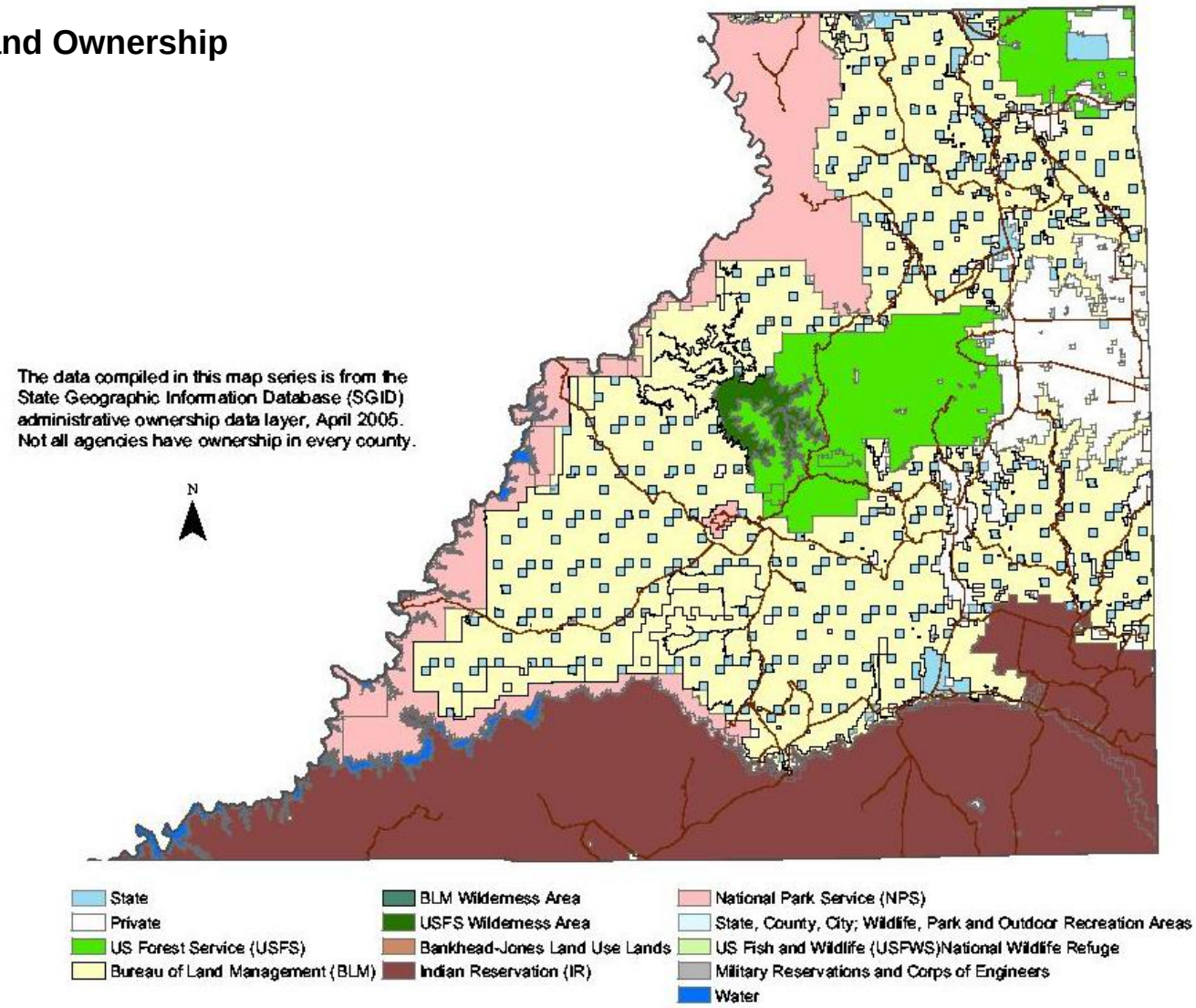
Land Cover/Land Use	Acres	%
Forest	1,890,662	38%
Grain Crops	55,117	1%
Conservation Reserve Program ***a**	36,079	1%
Grass/Pasture/Haylands	26,733	1%
Orchards/Vineyards	71	0%
Row Crops	26,557	1%
Shrub/Rangelands	2,937,699	58%
Water	45,629	1%
Developed	4,488	0%
San Juan County Totals ***b	5,023,035	100%

***a**: Estimate from Farm Service Agency records and include CRP/CREP. **b**: Totals may not add due to rounding and small unknown acreages.*

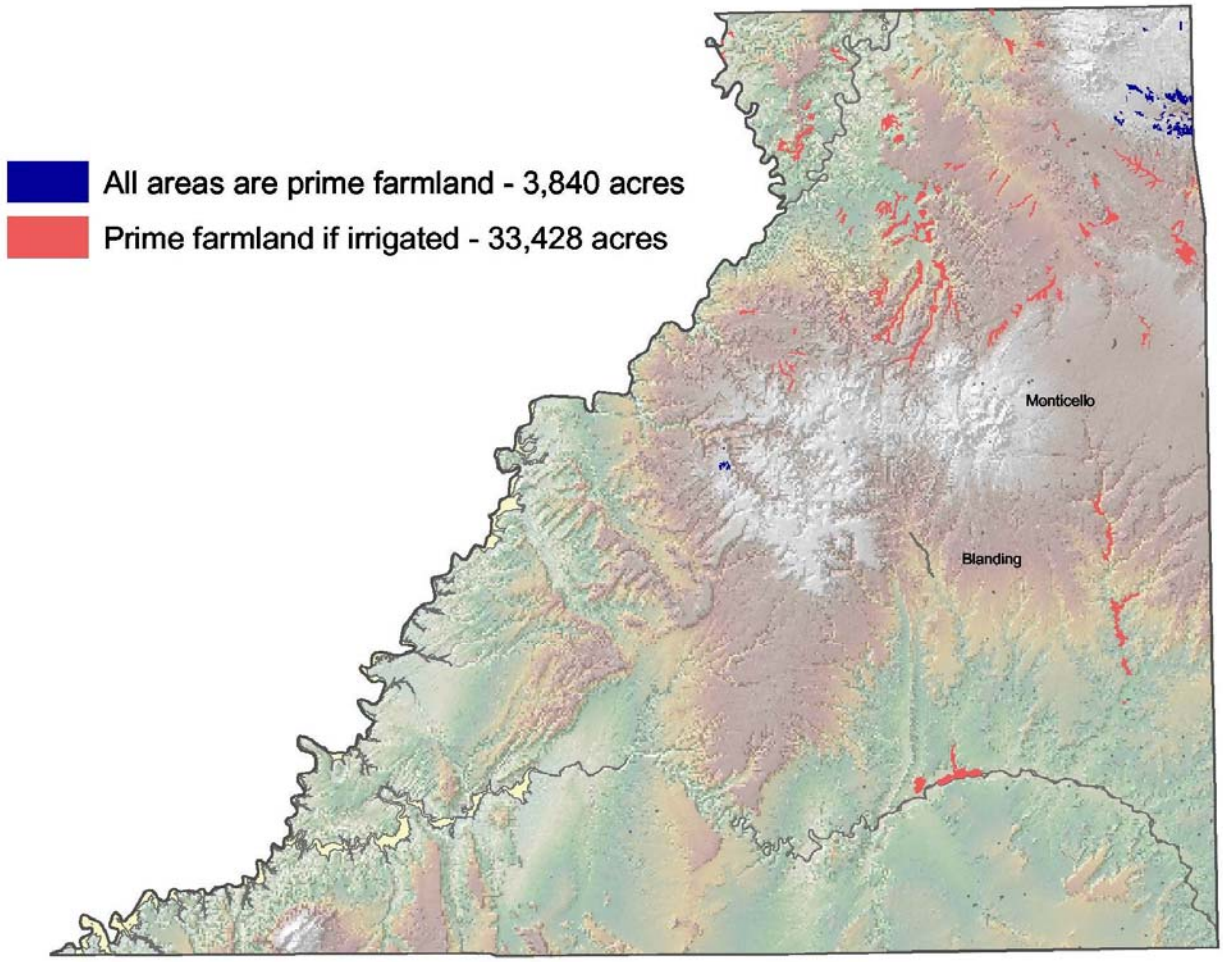
Special Considerations for San Juan County:

- Thirty-seven percent of private forest is in industrial forest ownership.
- As of August 2005, 36,079 acres of CREP have been applied (FSA).
- Row crops include a variety of field and vegetable crops.
- There are approximately 55,117 acres of grain.
- Shrub/rangelands consist of desert shrub and barren lands.
- Nine one-hundredth of a percent of the county consists of urban land uses within metropolitan areas.
- Nine tenth of a percent of the county is covered with water.

Land Ownership



Prime & Unique Farm Land



Prime farmland

Land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion.

Unique farmland

Land other than prime farmland that is used for the production of specific high-value food and fiber crops...such as, citrus, tree nuts, olives, cranberries, fruits, and vegetables.

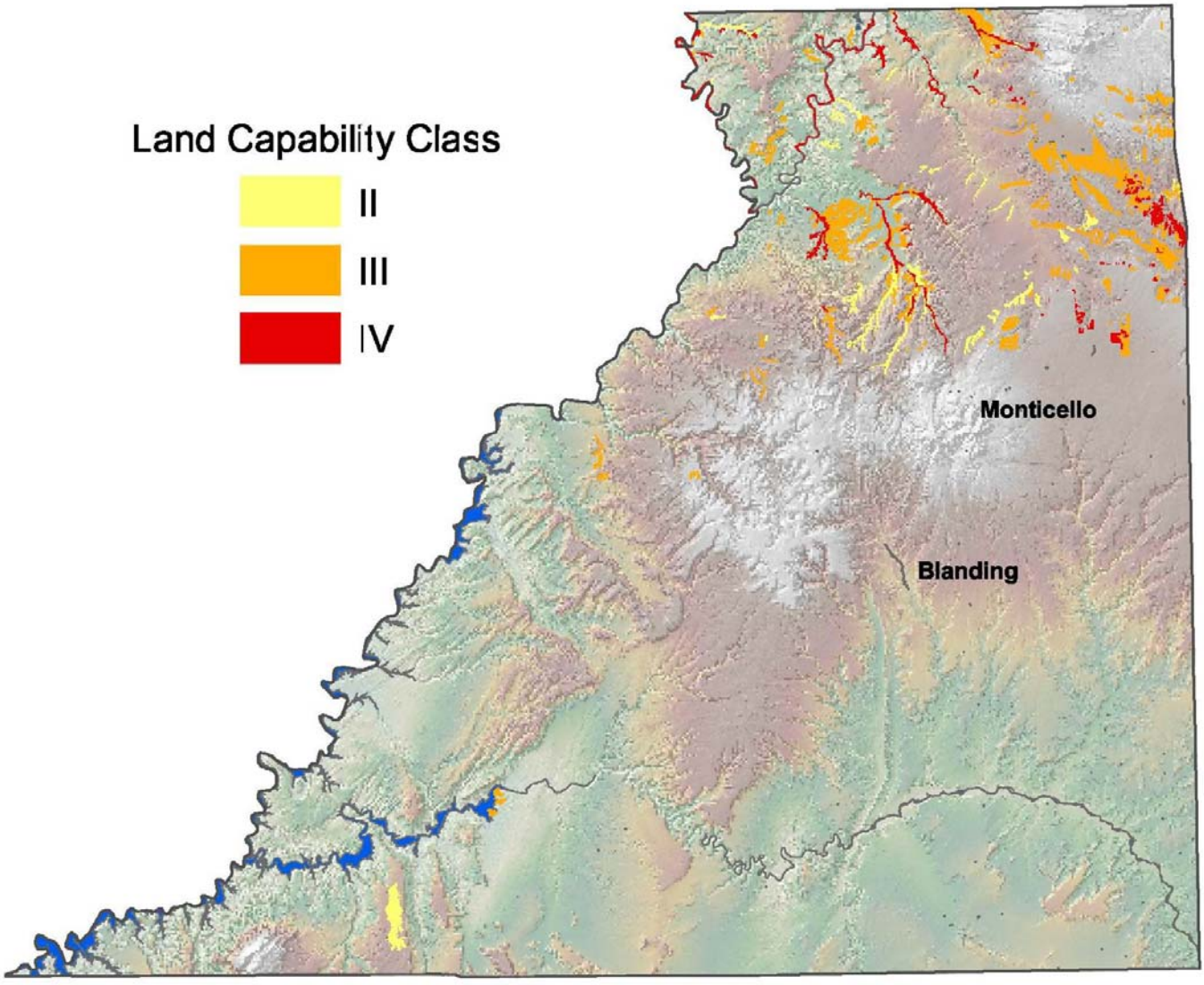
Additional farmland of statewide or local importance

Land identified by state or local agencies for agricultural use, but not of national significance.

Resource Concerns – SOILS

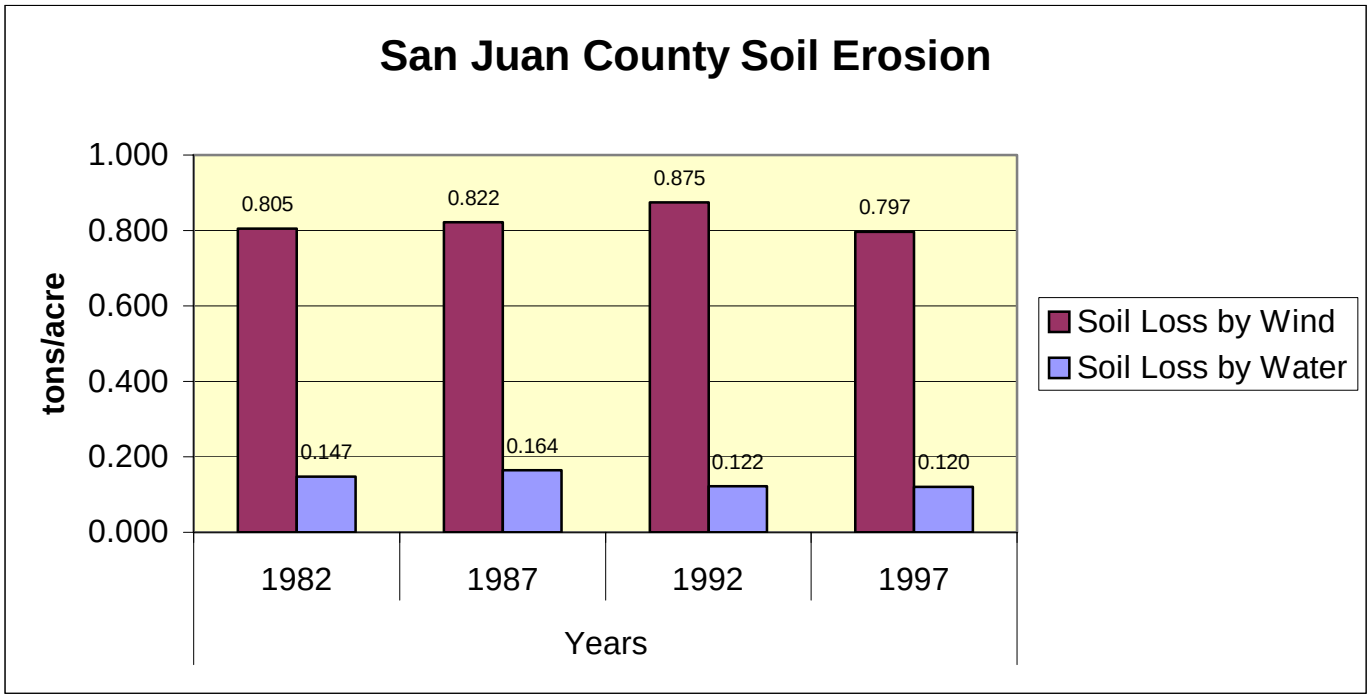
Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Soil Erosion	Sheet and Rill	x			x	x						x			x	x
	Wind	x			x							x			x	x
	Ephemeral Gully	x			x	x		x	x							x
	Classic Gully	x														
	Streambank				x	x										x
	Shoreline															
	Irrigation-induced		x	x												
	Mass Movement					x	x									x
	Road, roadsides and Construction Sites	x				x	x					x	x		x	
Soil Condition	Organic Matter Depletion	x														
	Rangeland Site Stability				x	x										x
	Compaction	x	x	x												
	Subsidence													x	x	
	ContaminantsSalts and Other Chemicals														x	
	Contaminants: Animal Waste and Other OrganicsN	x	x	x										x		
	Contaminants: Animal Waste and Other OrganicsP	x	x	x										x		
	Contaminants: Animal Waste and Other OrganicsK	x	x	x										x		
	Contaminants : Commercial FertilizerN	x	x	x					x					x		
	Contaminants : Commercial FertilizerP	x	x	x					x					x		
	Contaminants : Commercial FertilizerK	x	x	x					x					x		
	ContaminantsResidual Pesticides	x	x	x					x							
	Damage from Sediment Deposition	x			x	x			x					x		

Land Capability Class on Cropland and Pastureland



		Acres	Percentage
Land Capability Class (Irrigated Cropland & Pastureland Only)	**I** - slight limitations	0	0%
	II - moderate limitations	18,574	19%
	III - severe limitations	60,506	62%
	IV - very severe limitations	18,885	19%
	V - no erosion hazard, but other limitations	0	0%
	VI - severe limitations, unsuited for cultivation, limited to pasture, range, forest	0	0%
	VII - very severe limitations, unsuited for cultivation, limited to grazing, forest, wildlife	0	0%
	VIII - misc areas have limitations, limited to recreation, wildlife, and water supply	0	0%

Soil Erosion



- Sheet and rill erosion by water on the sub basin pasturelands have been reduced by .08 tons of soil per acre from 1992 to 1997. Dry cropland in San Juan County can be compared using a multiplier of ten.
- Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the nation's waters.
- Through NRCS programs many farmers and ranchers have applied conservation practices to reduce the effects of erosion by water. As a result, erosion rates on pasturelands fell 40 percent from 0.164 to 0.12 tons/acre/year from 1987 to 1997. Dry cropland in San Juan County can be compared using a multiplier of ten.

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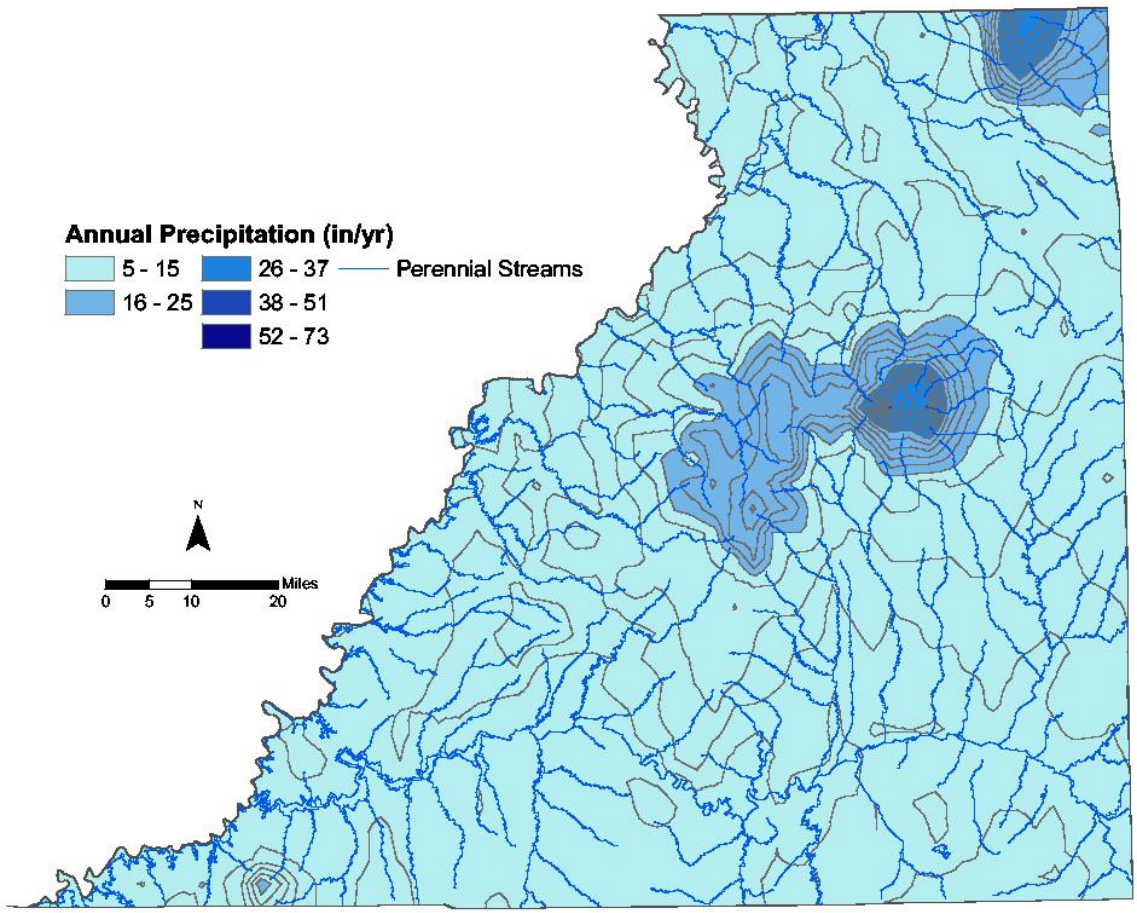
Resource Concerns – WATER

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Water Quantity	Water Quantity – Rangeland Hydrologic Cycle				x	x			x	x						x
	Excessive Seepage															
	Excessive Runoff, Flooding, or Ponding	x	x	x	x	x			x	x	x	x	x		x	x
	Excessive Subsurface Water															
	Drifted Snow	x			x	x						x	x		x	
	Inadequate Outlets															
	Inefficient Water Use on Irrigated Land	x	x	x												
	Inefficient Water Use on Non-irrigated Land	x			x	x										
	Reduced Capacity of Conveyances by Sediment Deposition															
	Reduced Storage of Water Bodies by Sediment Accumulation				x	x		x	x							x
	Aquifer Overdraft															
	Insufficient Flows in Watercourses				x	x		x	x							x
Water Quality, Groundwater	Harmful Levels of Pesticides in Groundwater															
	Excessive Nutrients and Organics in Groundwater															
	Excessive Salinity in Groundwater															
	Harmful Levels of Heavy Metals in Groundwater															
	Harmful Levels of Pathogens in Groundwater															
	Harmful Levels of Petroleum in Groundwater															
Water Quality, Surface	Harmful Levels of Pesticides in Surface Water	x	x	x												
	Excessive Nutrients and Organics in Surface Water															
	Excessive Suspended Sediment and Turbidity in Surface Water	x	x	x	x	x				x		x			x	x
	Excessive Salinity in Surface Water															
	Water Quality – Colorado River Excessive Salinity															
	Harmful Levels of Heavy Metals in Surface Water															
	Harmful Temperatures of Surface Water															
	Harmful Levels of Pathogens in Surface Water	x			x	x										
	Harmful Levels of Petroleum in Surface Water															

Precipitation and Streams



		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights	Surface	8930.00	35720.00
	Well		
	Total Irrigated Adjudicated Water Rights	8930.00	35720.00
Stream Flow Data	USGS 09379500 San Juan River Near Bluff, UT	Total Avg. Yield	11,075
		May-Sept Yield	15,555
		MILES	**PERCENT**
Stream Data	**Total Miles - Major (100K Hydro GIS Layer)**	2140.00	n/a
	303d **(DEQ Water Quality Limited Streams)**	0.00	0%

	Irrigation Efficiency:	<40%	40 - 60%	>60%
Percentage of Total Acreage	Cropland	15%	45%	40%
	Pastureland	15%	25%	60%

Watersheds & Total Maximum Daily Load (TMDL)

Watershed Projects, Plans, Studies and Assessments			
NRCS Watershed Projects		**NRCS Watershed Plans, Studies & Assessments**	
Name	**Status**	**Name**	**Status**
Montezuma Creek	**In Progress**		
DEQ TMDL's		**NRCS Comprehensive Nutrient Management Plans**	
Name	**Status**	**Number**	**Status**
Cottonwood Wash	Completed 2002	0	Planned
TMDL for Ken's Lake	Completed 2002	0	Implemented

AFO/CAFO

Animal Feeding Operations (AFO)						
Animal Type	**Dairy**	**Feed Lot (Cattle)**	**Poultry**	**Swine**	**Mink**	**Other**
No. of Farms	0	33	0	0	0	0
No. of Animals						

Potential Confined Animal Feeding Operations (PCAFO)						
Animal Type	**Dairy**	**Feed Lot (Cattle)**	**Poultry**	**Swine**	**Mink**	**Other**
No. of Farms	0	1	0	0	0	0
No. of Animals						

Confined Animal Feeding Operations - Utah CAFO Permit					
Animal Type	**Dairy**	**Feed Lot (Cattle)**	**Poultry**	**Swine**	**Other**
No. of Permitted Farms	0	0	0	0	0
No. of Permitted Animals					

Resource Concerns – AIR, PLANTS, ANIMALS

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Air Quality	Particulate matter less than 10 micrometers in diameter (PM 10)	X			X				X						X	X
	Particulate matter less than 2.5 micrometers in diameter (PM 2.5)	X			X				X						X	X
	Excessive Ozone															
	Excessive Greenhouse Gas: CO2 (carbon dioxide)	X			X				X						X	X
	Excessive Greenhouse Gas: N2O (nitrous oxide)															
	Excessive Greenhouse Gas: CH4 (methane)															
	Ammonia (NH3)															
	Chemical Drift															
	Objectionable Odors															
	Reduced Visibility	X			X				X						X	X
	Undesirable Air Movement															
	Adverse Air Temperature															
Plant Suitability	Plants not adapted or suited				X	X				X						
Plant Condition	Plant Condition – Productivity, Health and Vigor				X	X				X						
	Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act				X	X				X						
	Threatened or Endangered Plant Species: Declining Species, Species of Concern				X	X				X						
	Noxious and Invasive Plants	X	X	X	X	X				X					X	X
	Forage Quality and Palatability		X	X	X	X				X						
	Plant Condition – Wildfire Hazard				X	X				X						
Fish and Wildlife	Inadequate Food				X	X		X								
	Inadequate Cover/Shelter				X	X		X								
	Inadequate Water				X	X		X								
	Inadequate Space				X	X		X								
	Habitat Fragmentation				X	X		X								
	Imbalance Among and Within Populations				X	X		X								
	Threatened and Endangered Species: Species Listed or Proposed for Listing under the Endangered Species Act				X	X		X								
Domestic Animals	Inadequate Quantities and Quality of Feed and Forage		X	X	X	X										
	Inadequate Shelter		X	X	X	X										
	Inadequate Stock Water		X	X	X	X										
	Stress and Mortality		X	X	X	X										

Noxious Weeds

Utah Noxious Weed List

The following weeds are officially designated and published as noxious for the State of Utah, as per the authority vested in the Commissioner of Agriculture under Section 4-17-3, Utah Noxious Weed Act:

- Bermuda grass** (cynodon dactylon)
- Canada thistle (cirsium arvense)
- Diffuse knapweed (centaurea diffusa)
- Dyers woad (isatis tinctoria L)
- Field bindweed (Wild Morning Glory) (convolvulus arvensis)
- Hoary cress (cardaria drabe)
- Johnson grass (sorghum halepense)
- Leafy spurge (euphorbia esula)
- Medusa head (taeniatherum caput-medusae)
- Musk thistle (carduus mutans)
- Perennial pepper weed (lepidium latifolium)
- Perennial sorghum (sorghum halepense L & sorghum almum)
- Purple loosestrife (lythrum salicaria L.)
- Quack grass (agropyron repens)
- Russian knapweed (centaurea repens)
- Scotch thistle (onopordum acanthium)
- Spotted knapweed (centaurea maculosa)
- Squarrose knapweed (centaurea squarrosa)
- Yellow starthistle (centaurea solstitialis)

Additional noxious weeds declared by San Juan County (2003): Silverleaf Nightshade, Buffalobur, Whorled Milkweed, Jointed goatgrass

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Wildlife Species of Greatest Conservation Need

The Utah Comprehensive Wildlife Conservation Strategy (CWCS) prioritizes native animal species according to conservation need. At-risk and declining species in need of conservation were identified by examining species biology and life history, populations, distribution, and threats. The following table lists species of greatest conservation concern in the county.

AT-RISK SPECIES				
	Common Name	**Group**	**Primary Habitat**	**Secondary Habitat**
FEDERALLY-LISTED				
Endangered:	California Condor (experimental)	Bird	Cliff	
	Black-footed Ferret (extirpated)	Mammal	Grassland	High Desert Scrub
	Gray Wolf (extirpated)	Mammal	Mountain Shrub	Mixed Conifer
	Bonytail Chub	Fish	Water - Lotic	
	Colorado Pikeminnow	Fish	Water - Lotic	
	Humpback Chub	Fish	Water - Lotic	
	Razorback Sucker	Fish	Water - Lotic	
	Southwestern Willow Flycatcher	Bird	Lowland Riparian	Mountain Riparian
Threatened:	Mexican Spotted Owl	Bird	Cliff	Lowland Riparian
	Bald Eagle	Bird	Lowland Riparian	Agriculture
	Brown (Grizzly) Bear (extirpated)	Mammal	Mixed Conifer	Mountain Shrub
Candidate:	Gunnison Sage-grouse	Bird	Shrubsteppe	
	Yellow-billed Cuckoo	Bird	Lowland Riparian	Agriculture
Proposed:	(None)			
STATE SENSITIVE				
Conservation Agreement Species:	Northern Goshawk	Bird	Mixed Conifer	Aspen
	Bluehead Sucker	Fish	Water - Lotic	Mountain Riparian
	Roundtail Chub	Fish	Water - Lotic	
	Flannelmouth Sucker	Fish	Water - Lotic	
Species of Concern:	Allen's Big-eared Bat	Mammal	Lowland Riparian	Pinyon-Juniper
	American White Pelican	Bird	Water - Lentic	Wetland
	Arizona Toad	Amphibian	Lowland Riparian	Wetland
	Big Free-tailed Bat	Mammal	Lowland Riparian	Cliff
	Bobolink	Bird	Wet Meadow	Agriculture
	Burrowing Owl	Bird	High Desert Scrub	Grassland
	Common Chuckwalla	Reptile	High Desert Scrub	Low Desert Scrub
	Desert Night Lizard	Reptile	Low Desert Scrub	Pinyon-Juniper
	Ferruginous Hawk	Bird	Pinyon-Juniper	Shrubsteppe
	Fringed Myotis	Mammal	Northern Oak	Pinyon-Juniper
	Greater Sage-grouse	Bird	Shrubsteppe	
	Gunnison's Prairie-dog	Mammal	Grassland	High Desert Scrub
	Kit Fox	Mammal	High Desert Scrub	
	Lewis's Woodpecker	Bird	Ponderosa Pine	Lowland Riparian
	Mexican Vole	Mammal	Ponderosa Pine	Aspen
	Short-eared Owl	Bird	Wetland	Grassland
	Silky Pocket Mouse	Mammal	Grassland	Shrubsteppe
	Smooth Greensnake	Reptile	Mountain Riparian	Wet Meadow
	Spotted Bat	Mammal	Low Desert Scrub	Cliff
	Three-toed Woodpecker	Bird	Sub-Alpine Conifer	Lodgepole Pine
	Townsend's Big-eared Bat	Mammal	Pinyon-Juniper	Mountain Shrub
	Yavapai Mountainsnail	Mollusk	Aspen	Rock

*Definitions of habitat categories can be found in the Utah Comprehensive Wildlife Conservation Strategy.

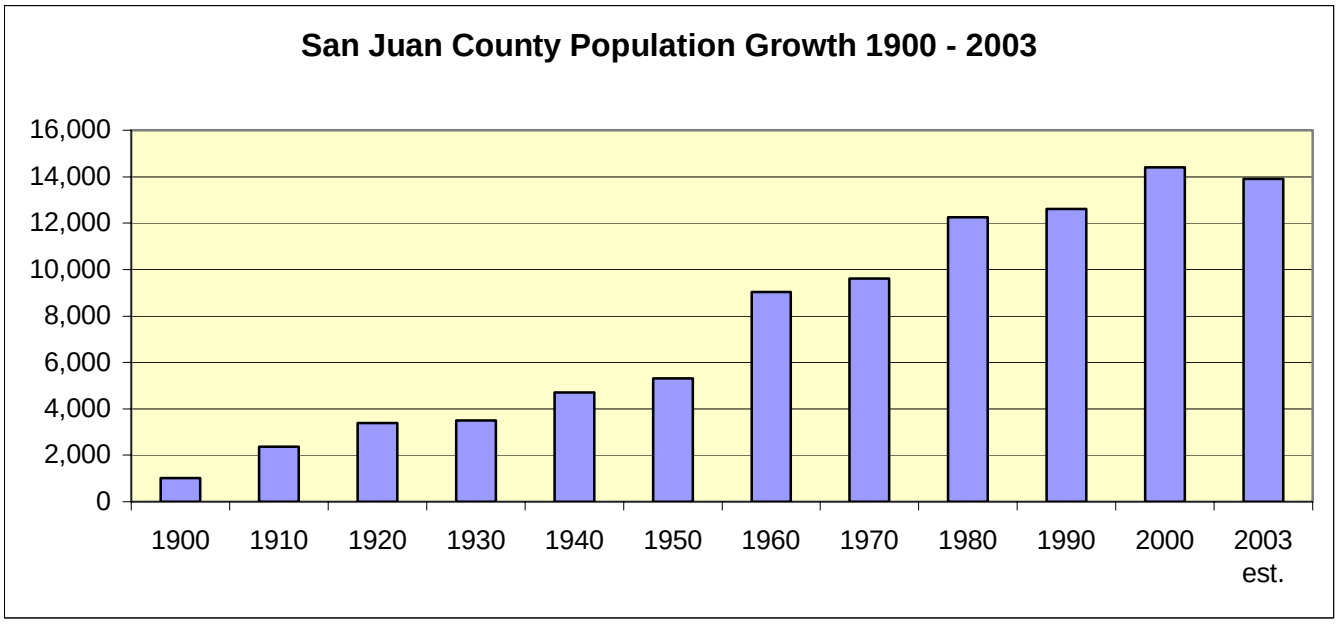
The Utah CWCS also prioritizes habitat categories based on several criteria important to the species of greatest conservation need. The top ten hey habitats state-wide are (in order of priority):

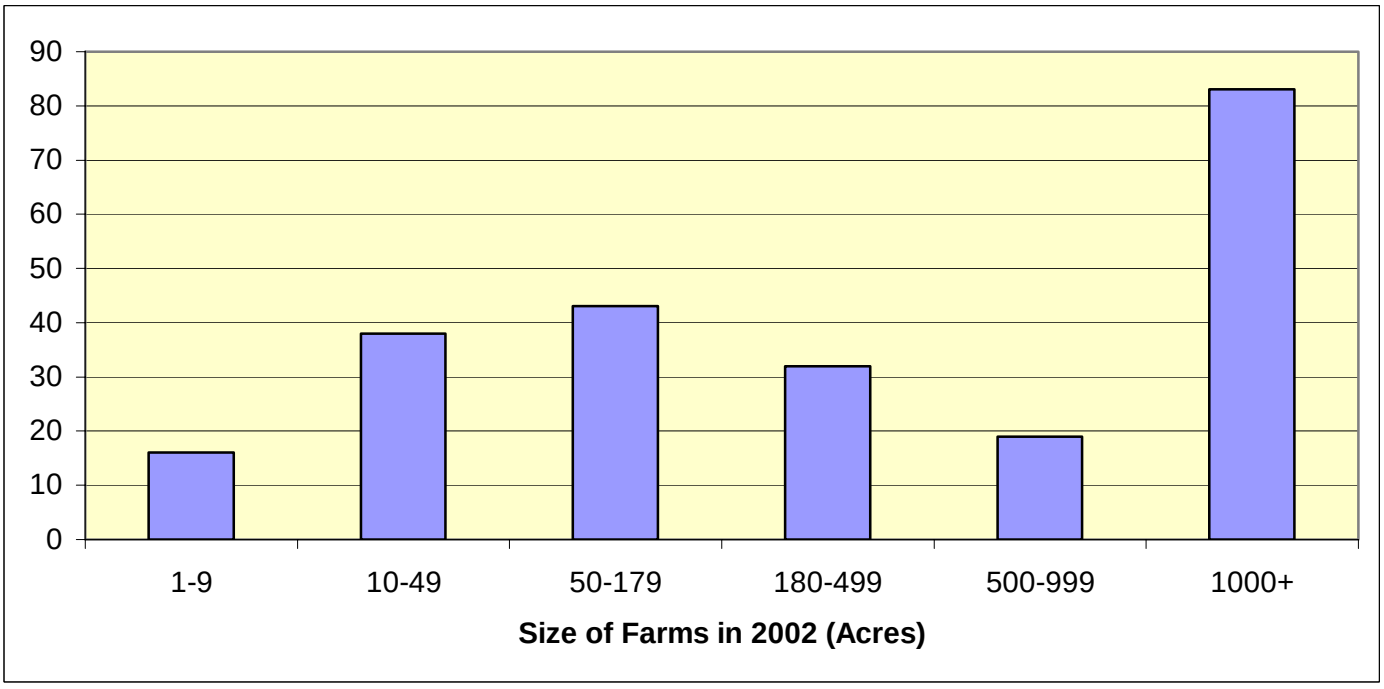
1) **Lowland Riparian** (riparian areas <5,500 ft elevation; principal vegetation: Fremont cottonwood and willow)
2) **Wetland** (marsh <5,500 ft elevation; principal vegetation: cattail, bulrush, and sedge)
3) **Mountain Riparian** (riparian areas >5,500 ft elevation; principal vegetation: narrowleaf cottonwood, willow, alder, birch and dogwood)
4) **Shrubsteppe** (shrubland at 2,500 - 11,500 ft elevation; principal vegetation: sagebrush and perennial grasses)
5) **Mountain Shrub** (deciduous shrubland at 3,300 - 9,800 ft elevation; principal vegetation: mountain mahogany, cliff rose, bitterbrush, serviceberry, etc.)
6) **Water - Lotic** (open water; streams and rivers)
7) **Wet Meadow** (water saturated meadows at 3,300 - 9,800 ft elevation; principal vegetation: sedges, rushes, grasses and forbs)
8) **Grassland** (perennial and annual grasslands or herbaceous dry meadows at 2,200 - 9,000 ft elevation)
9) **Water - Lentic** (open water; lakes and reservoirs)
10) **Aspen** (deciduous aspen forest at 5,600 - 10,500 ft elevation)

Resource Concerns – SOCIAL AND ECONOMIC

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Social and Economic	Non-Traditional Landowners and Tenants	x	x	x					x							
	Urban Encroachment on Agricultural Land															
	Marketing of Resource Products	x	x	x												
	Innovation Needs	x	x	x												
	Non-Traditional Land Uses	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Population Demographics, Changes and Trends															
	Special Considerations for Land Mangement (High State and Federal Percentage)				x	x				x					x	x
	Active Resource Groups (CRMs, etc)															
	Full Time vs Part Time Agricultural Communities															
	Size of Operating Units															
	Land Removed from Production through Easments															
	Land Removed from Production through USDA Programs	x	x	x	x	x										
Other																

Census and Social Data





Number of Farms: 231

Number of Operators:

- Full-Time Operators: 140
- Part-Time Operators: 91

Public Survey/Questionnaire Results:

Categories	Concern high, medium, or low	Description and Specific Location (quantify where possible)
Soil	Medium	Soil erosion associated with dryland farming.
Water Quantity	Medium	Water depletion in Lake Powell and additional lower basin storage.
Water Quality Ground Water	Medium	General concerns regarding ground water quality.
Water Quality Surface Water	Medium	General concerns regarding ground water quality.
Air Quality	Low	No concerns mentioned.
Plant Suitability	Medium	General concerns regarding noxious/invasive weeds.
Plant Condition	Low	No concerns mentioned.
Fish and Wildlife	Medium	Do not want the reintroduction of wolves in the area.
Domestic Animals	Low	No concerns mentioned.
Social and Economic	Low	No concerns mentioned.

Footnotes / Bibliography

1. General information about San Juan County obtained from a San Juan County website and the NRCS office.

2. Location and land ownership maps made using GIS shape files from the Automated Geographical Reference Center (AGRC), a Utah State Division of Information Technology. Website: http://agrc.utah.gov/

3. Land Use/Land Cover layer developed by the Utah Department of Water Resources. A polygon coverage containing water-related land-use for all 2003 agricultural areas of the state of Utah. Compiled from initial USGS 7.5 minute Digital Raster Graphic water bodies, individual farming fields and associated areas are digitized from Digital Orthophotos, then surveyed for their land use, crop type, irrigation method, and associated attributes.

4. Prime and Unique farmlands derived from SURGO Soils Survey UT607 and Soil Data Viewer. Definitions of Prime and Unique farmlands from U.S. Geological Survey, http://water.usgs.gov/eap/env_guide/farmland.html#HDR5

5. Land Capability Classes derived from SURGO Soils Survey UT607 and Soil Data Viewer.

6. Tons of Soil Loss by Water Erosion data gathered from National Resource Inventory (NRI) data. Estimates from the 1997 NRI Database (revised December 2000) replace all previous reports and estimates. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is due to changes in statistical estimation protocols, and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error disc overed in March 2000. For more information: http://www.nrcs.usda.gov/technical/NRI/

7. Precipitation data was developed by the Oregon Climate Service at Oregon State University using average monthly or annual precipitation from 1960 to 1990. Publication date: 1998. Data was downloaded from the Resource Data Gateway, http://dgateway-wb01.lighthouse.itc.nrcs.usda.gov/lighthouse

8. Irrigated Adjudicated Water Rights obtained from the Utah Division of Water Rights.

9. USGS USGS Real-Time Data for the Nation

10. Stream length data calculated using ArcMap and 100k stream data from AGRC and 303d waters from the Utah Department of Environmental Quality.

11. General information about San Juan County obtained from a San Juan County website and the NRCS office.

12. The 2003 noxious weed list was obtained from the State of Utah Department of Food and Agriculture. For more information contact Steve Burningham, 801-538-7181 or visit their website at http://ag.utah.gov/plantind/noxious_weeds.html

13. Wildlife information derived from the Utah Division of Wildlife Resources' Comprehensive Wildlife Conservation Strategy (CWCS) (http://wildlife.utah.gov/cwcs/) and from the Utah Conservation Data Center (http://dwrcdc.nr.utah.gov/ucdc/).

14. County population data from the U.S. Census Bureau, Utah Quick Facts, http://quickfacts.census.gov/qfd/states/49000.html

15. Farm information obtained from the National Agricultural Statistics Service, 2002 Census of Agriculture. http://www.nass.usda.gov/census/census02/volume1/index2.htm